

## Road and Rail Transportation in the Delta

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**Summary:** The road and rail network that crisscrosses the Delta serves local needs, provides access to regional urban markets, and, in turn, links the Delta's economy to national and global markets. As the Delta Plan points out, this network is vulnerable to flooding, seismic activity and sea-level rise.

Staff of Caltrans, regional and local planning and transportation agencies and Delta representatives will brief the Council on what actions they are taking/contemplating and how the Council could help.

The intent of this information item is for the Council to 1) consider how best to integrate transportation issues into its ongoing levee investment prioritization study; 2) provide additional consultation to the Bay Delta Conservation Plan (BDCP) agencies on mitigation of transportation impacts; 3) promote better coordination of the many transportation planning efforts in the Delta, including Caltrans' climate change vulnerability assessments.

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### **Background**

One of the Delta Plan's core strategies for protecting and enhancing the Delta is to "sustain a vital Delta economy that includes a mix of agriculture, tourism, recreation, commercial and other industries, and vital components of state and regional infrastructure," including the transportation system.

The Delta Plan states:

*The Delta's economy benefits from the surface transportation, utilities, and other infrastructure that crisscross the Delta to serve local needs, provide access to regional urban markets, and, in turn, link the Delta's economy to national and global markets.*

This statement underscores the importance of transportation to the local economy. For example, farm-to-market routes support the Delta's agricultural economy, which generated \$702 million in revenues from crop production in 2009, according to the Delta Protection Commission's (DPC's) Economic Sustainability Plan. Based on 2008 data, Delta agriculture also produced \$683 million in added value and \$1.416 billion in output in the five Delta counties, according to the Economic Sustainability Plan. Roads, including scenic rural roads, also support recreation and tourism, which benefit the Delta economy. The Economic Sustainability Plan estimates that anglers, hunters, boaters, picnickers, campers, hikers, bicyclists, visitors driving for pleasure, and others who recreate in parks, wildlife areas, trails, or roadways spend \$312 million (in 2011 dollars) per year in the Delta. Additionally, DPC's Economic Sustainability Plan

identified agriculture, transportation and warehousing as key industries for the Delta economy. Historic bridges have an iconic status in the Delta. On the one hand, these bridges help create a sense of place for the Delta; on the other hand, many of these bridges are in need of repair, as discussed below.

The Delta's transportation system also includes vital elements of state infrastructure that serve the growing urban populations of the Bay Area, the greater Sacramento area, and San Joaquin County, and provide essential links for the movement of national and global freight. Several state and interstate highways cross the Delta (Attachment 1). The state highways are State Route (SR) 4, SR 12, SR 84, SR 160, and SR 220. The Delta includes three interstate freeways (I-5, I-80, and I-205), and I-680 passes through the Suisun Marsh. Traffic volumes on these routes are quite variable. For example, at the peak hour, traffic volumes range from over 1000 vehicles per hour on SR 4 and SR 12 to over 10,000 vehicles per hour on I-5.



*State Route 12 runs through the Delta from Lodi to Fairfield.*

Lastly, the Delta's rail lines are a key part of the transportation network and provide freight and passenger services to various points in the continental U.S. and within the region. The rail lines of two private, transcontinental railroad companies, Union Pacific Railroad and Burlington Northern Santa Fe, pass through the Delta. In addition to providing freight services—with as many as 60 trains per day traveling over their respective routes—both railroads host extensive inter-city and long-haul passenger services that operate on their lines under agreement, according to the Bay Delta Conservation Plan (BDCP) Draft Environmental Impact Report/Environmental Impact Statement (Draft EIR/EIS).



*Railroad tracks run along a levee with a Delta channel to the right.*

Several heavily used passenger routes pass through the Delta and the Suisun Marsh. According Amtrak, in Fiscal Year 2012, its Capital Corridor service (San Jose to Auburn), which passes through the Suisun Marsh and part of Delta within West Sacramento, carried over 1.7 million passengers; its San Joaquin route, which crosses through the Delta between Stockton and Antioch, had over 1.1 million passengers. Additionally, companies such as the Sierra Northern Railway use existing short-line tracks for inter-regional freight and passenger services.

### **Delta Reform Act and Delta Plan Recommendations**

Implementation of the Delta Plan's recommendations related to transportation can support the state's efforts to protect and enhance the Delta as an evolving place.

- **DP R2. Designate State Route 160 as a National Scenic Byway.** National Scenic Byway status under the U.S. Department of Transportation and a scenic byway plan would provide opportunities to improve travel-related facilities and protect scenic resources associated with the byway. DP R2 recommends that Caltrans seek designation of SR 160 as a National Scenic Byway to protect and enhance the unique cultural, recreational, natural resource, and agricultural values. Implementing this recommendation would provide opportunities to improve signage, interpretation, and amenities for access recreation and non-car travel. It would also enhance visitor's sense of the Delta as place.
- **DP R5. Provide Adequate Infrastructure.** DP R5 recommends that Caltrans and local agencies plan infrastructure, such as roads and highways, to meet the needs of development consistent with sustainable communities strategies (SCSs), local plans, the DPC's Land Use and Resource Management Plan, and the Delta Plan. Furthermore, this recommendation recognizes that local roads, railroads, and the state highway system are important to economic, sustainability, and place-making factors of the Delta.
- **DP R6. Plan for State Highways.** The Delta Reform Act (Water Code Section 85307(c)) states that the Delta Stewardship Council (Council), "in consultation with the Department of Transportation, may address in the Delta Plan the effects of climate change and sea level rise on the three state highways that cross the Delta." In response to this authorization, the Council adopted Delta Plan Recommendation DP R6, which recommends that the Council, as part of the prioritization of state levee investments, should consult with Caltrans to consider the effects of flood hazards and sea level rise on state highways in the Delta.

## **Challenges**

The Delta's transportation system faces two main challenges: the poor condition of existing infrastructure, and flood risk, which is projected to increase due to climate change.

### **Infrastructure Constraints**

The Delta's narrow levee roads are difficult to widen. Highways that are located on peat soils are vulnerable to subsidence and require more frequent maintenance than highways located on mineral soils. According to the Sacramento Area of Council of Government's (SACOG's) Rural-Urban Connections Strategy (RUCS), even in robust economic climates, rural areas have difficulty paying for road maintenance and improvements.



*Many Delta levee roads are barely two lanes.*

In the Delta region, as rural lands transition into non-agricultural uses, more rural roads

are experiencing increased commute traffic, presenting challenges as high speed automobile traffic and slow moving farm vehicles share the same road, according to RUCS. Increased traffic from recreation and tourism can also create conflicts with farm-to-market transportation on the Delta's roads. Increased heavy truck traffic and more frequent commuter, as well as agritourism, traffic drive up the cost of maintenance of rural roads and leave local agencies struggling with funding shortfalls.

The Delta's historic bridges are in poor condition, too. The following bridges are structurally deficient, according to Transportation for America's *The Fix We're In For: The State of Our Bridges*:

- Rio Vista Bridge
- Isleton Bridge
- Steamboat Slough Bridge
- Paintersville Bridge
- SR 120W-I-5 Connector Bridge
- Mokelumne River Bridge
- Old River Bridge
- Middle River Bridge



*Paintersville Bridge lets Highway 160 cross the Sacramento River north of Grand Island.*

These bridges were built between 1915 and 1947 and were last rehabilitated between 1952 and 1978. Only the historic Tower Bridge was rehabilitated within the last 10 years, in 2005. A Caltrans seismic retrofit project for the Paintersville Bridge is currently in the design stage. The eight bridges above are all eligible for the National Registry of Historic Places designation, according to Caltrans' *Structure Maintenance and Investigations, Historical Significance—State Agencies Bridges*. The historic status of these bridges can complicate efforts to upgrade them.

### **Flood Risk and Climate Change**

According to the California Department of Water Resources (DWR), 106 miles of state and federal highways and 30 miles of county roads are protected by levees in the Primary Zone of the Delta; in the Secondary Zone, 128 miles of highways and 18 miles of county roads are protected by levees (see Attachment 1). These routes depend on 534 miles of levees, about half the total length of the Delta levee system, for flood protection. The Delta Plan notes that no state standards currently address the design criteria for flood protection of the state and interstate highways that are located in the Delta. For example, sections of SR 12 are 10 feet or more below sea level, and a flood on the islands that this highway traverses could disrupt transportation and trade as well as put motorists at risk.

Additionally, flood risks are increasing as land in the Delta continues to subside and precipitation patterns change. For example, more precipitation falling as rain rather than snow and earlier snowmelt are expected to lead to higher peak flows. Sea level rise and

extreme weather events will likely to contribute to the following impacts to transportation infrastructure:

- Roadway washout
- Bridge scours
- Railway flooding
- Damage to roadway substructure
- Route closure
- Travel delays
- Increased need for emergency response services

### **Opportunities**

The Council can use this briefing as an opportunity to 1) consider how best to integrate transportation issues into its ongoing levee investment prioritization study; 2) provide additional consultation to the Bay Delta Conservation Plan (BDCP) agencies on mitigation of transportation impacts; 3) and promote better coordination of the many transportation planning efforts in the Delta, including Caltrans' climate change vulnerability assessments. The following section provides background information and context for these opportunities.

### **State Investment in Delta Levees and Transportation**

The Delta Reform Act requires:

The council, in consultation with the Central Valley Flood Protection Board, shall recommend in the Delta Plan priorities for state investments in levee operation, maintenance, and improvements in the Delta, including both levees that are a part of the State Plan of Flood Control and non-project levees (Water Code §85306).

The council has incorporated this legislative mandate into the Delta Plan as a recommendation (RR R4).

The Council's levee prioritization study will develop a peer-reviewed method that can be used to prioritize state investments in Delta levees. This method includes identifying beneficiaries, identifying appropriate levels of flood protection, and determining cost allocations among beneficiaries. The study will then use the peer-reviewed method to prioritize state investments in Delta levees and prepare the appropriate environmental documentation needed to be in compliance with the California Environmental Quality Act. Participating entities will include the DPC, Central Valley Flood Protection Board, DWR, and other stakeholders whose interests overlap with this process.

As mentioned above, the Delta Plan recommends that the Council, as part of its levee prioritization study, consult with Caltrans to consider the effects of flood hazards and sea level rise on state highways in the Delta. Council staff is following up on this



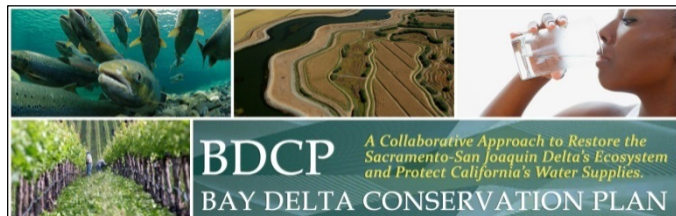
recommendation by inviting Caltrans to participate in one or more coordinating meetings that will help guide the study.

Caltrans has an active program to anticipate the effects of rising sea levels. It encourages the use of the sea level rise projections consistent with guidance in the Delta Reform Act. Caltrans participated in the development of the first set of statewide sea level rise scenarios in the Ocean Protection Council's 2013 statewide guidance document. The guidance document provides a standardized set of assumptions to use when determining sea level rise impacts, which includes an average of up to 55 inches by 2100 at the Golden Gate.

In 2014, Caltrans will initiate district vulnerability assessments that will identify segments of the state highway system vulnerable to sea level rise, increased temperatures, and extreme heat events, as well as changing precipitation patterns. The assessments will identify where past problems have occurred in order to assess vulnerability to future hazards. The assessments will be most applicable to maintenance activities, but Caltrans is already incorporating climate adaptation considerations, such as sea level rise, into facilities construction. Council staff will coordinate with Caltrans staff to track the development of these vulnerability assessments and incorporate their findings into the levee investment study, as appropriate.

### **The Bay Delta Conservation Plan and Mitigation of its Transportation Impacts**

The Bay Delta Conservation Plan (BDCP) is being developed with the goal of recovering endangered or threatened species in the Delta while providing great water supply reliability. It is intended to improve the way water is conveyed to the pumps of the state and federal water projects, establish parameters for operating those projects, restore large portions of the Delta to provide functional habitat, and reduce stressors such as invasive species and pollutants. Key elements include the construction of new water intakes on the Sacramento River and two tunnels to convey water to the pumps.



*The BDCP environmental review identifies temporary and permanent impacts to Delta transportation modes.*

The BDCP Draft EIR/S evaluates impacts to each transportation mode (roadways, navigation, transit services, rail, and bicycles) from construction and operation of the water conveyance facilities, as well as potential effects related to other conservation measures. The analysis identified the impacts listed below.

- Increased traffic volume, traffic delays, and changes in circulation patterns would result from construction of water conveyance facilities and habitat restoration.
- Increased traffic hazards and roadway damage could result from the related activities of BDCP during construction.

- Disruption of transit services during construction would be an impact.

Most potential transportation impacts that would result from BDCP would occur over an eight-to 10-year conveyance construction period. Mitigation measures in the Draft EIR/EIS include requirements to avoid or reduce circulation effects, notify the public of construction activities, provide alternative routes, require direct haulers to pull over in the event of an emergency, limit/prohibit the amount of construction activities on congested roadways, and enhance roadway conditions.

Another mitigation measure would improve the physical condition of affected roadway segments as stipulated in mitigation agreements or encroachment permits that BDCP proponents would develop with applicable transportation entities including:

- Caltrans for state and federal roadway facilities
- Local agencies for local roads
- Transit providers
- Rail operators

BDCP proponents have committed to paying their fair share of the cost of capacity enhancements, including physical improvements, to mitigate transportation impacts. Although most of the transportation-related impacts of BDCP would be relatively short-term in nature, there are potential long-term benefits associated with the proposed mitigation of these impacts, particularly if the proposed physical improvements to roadways are well-coordinated with local and regional transportation plans designed to meet development needs, as well as the consideration of climate change impacts.

### **Better Coordination of Planning Efforts**

As mentioned above, DP R5 recommends that Caltrans and local agencies plan infrastructure, such as roads and highways, to meet the needs of development consistent with SCSs, local plans, the DPC's Land Use and Resource Management Plan, and the Delta Plan. The elements of these plans that relate to transportation in the Delta are described below.

**Land Use and Resource Management Plan.** The Delta Protection Commission's Land Use and Resource Management Plan provides guidance for transportation projects in the primary zone of the Delta. It includes a goal to ensure that the construction of new infrastructure facilities is appropriate and the impacts to levees, wildlife, recreation, agriculture, are avoided, minimized, and mitigated. Furthermore, the Plan's Policy P-5 states:

Maintain roads within the Delta to serve the existing agricultural uses and supporting commercial uses, recreational users, and Delta residents,  
Promote the maintenance and enhancement of major thoroughfares already used as cross-Delta corridors.

### **Sustainable Communities Strategies.**

An SCS is an element of a Regional Transportation Plan (RTP) that describes where development will occur and how jobs and housing will be integrated with transportation in a way that reduces driving and its associated greenhouse gas emissions. SCSs are created by Metropolitan Planning Organizations (MPOs) that also develop RTPs in order to receive federal funding for projects included in those plans. Therefore, RTPs and their associated Transportation Improvement Programs, described below, are essential elements guiding transportation investments in the Delta.



*State Route 12 crosses the Sacramento River at Rio Vista.*

Delta Reform Act (Water Code section 85212) requires the Council to review SCSs that contain land in the Delta for consistency with the Delta Plan. There are three MPOs located in the Delta: SACOG; the San Francisco Bay Area's Metropolitan Transportation Commission (MTC); and the San Joaquin Council of Governments (SJCOG). In addition to its SCS, SACOG also completed the RUCS for Sacramento and Yolo Counties. RUCS considers the region's growth and sustainability objectives from a rural perspective as well as being an economic and environmental sustainability strategy for rural areas. For example, RUCS has included development of a rural goods movement route network that could be used to prioritize investments in routes that support the agricultural economy by serving processing facilities, distribution centers, and farms.

The three MPOs located in the Delta obtain federal funding for their transportation improvements through the development of Transportation Improvement Programs which are comprehensive listings of surface transportation projects that are to receive federal funding or are subject to a federally required action, or are considered regionally significant for air quality conformity purposes.

- SACOG developed the 2011/14 Metropolitan Transportation Improvement Program, which identifies 30 roadways and transit projects in the Delta, including nine federally funded projects in the Delta area.
- MTC's 2013 Transportation Improvement Plan commits funding to projects for a six-year period, from federal Fiscal Year (FY) 2012-2013 through FY 2017-2018. The MTC planning region includes approximately 30 roadways and transit improvement projects located within the Legal Delta, two of which are federally funded.
- SJCOG developed the current Federal Transportation Improvement Program that covers FY 2012-2013 through 2015-2016. The planning region includes



approximately 40 roadway and transit improvement projects within the legal Delta area, including 20 federally funded ones.

**Caltrans Coordination.** Caltrans currently coordinates planning for statewide, regional, county-wide, and local roadway long-range needs through partnerships. Generally, their planning horizon is 20 years, and these needs are driven by demand, particularly in the Delta, where many roads are narrow, outmoded routes that may be unable to meet current transportation needs or provide the capacity that projected new development would require. Caltrans coordinates with the MPOs on RTPs that are updated every four to five years. Typically, the agency that obtains funding leads the effort. For example SJCOG has a local sales tax, Measure K, which funds transit projects. In that case, SJCOG leads the transportation planning process and partners with Caltrans.

Caltrans provides guidance to MPOs and regional transportation agencies for addressing climate change adaptation in RTPs and incorporating sea level rise analyses in the planning and development of projects. This guidance helps these agencies assess the relative risks to their transportation system infrastructure and services of different climate stressors such as sea level rise, temperature changes, precipitation changes, and extreme weather events. The guidance also helps agencies conduct an asset inventory and vulnerability assessment of existing infrastructure as well as incorporate climate impact considerations into future long-range transportation planning and investment decisions.

**Delta Plan.** The Delta Plan recognizes that local roads, railroads, and the state highway system are important to economic, sustainability, and place-making factors of the Delta.



As mentioned above, the Delta Plan recommends that Caltrans seek designation of SR 160 as a National Scenic Byway to protect and enhance the unique cultural, recreational, natural resource, and agricultural values. The designation process is on hold until new funds are appropriated to expand the National Scenic Byways system, according to DPC staff. Given the importance of Delta bridges to defining the Delta as a place, another issue to consider is whether

regional transportation plans should place more emphasis on rehabilitating them. In addition to considering the iconic status of the Delta's historic bridges, it is worth exploring which bridges may be important links in evacuation routes in case of catastrophic flooding.

### **Today's Briefing**

At today's meeting, the Council will hear from experts representing local, regional, and state points of view about road and rail transportation in the Delta.

The panel members include:

- Garth Hopkins, Chief of the Office of Regional Planning of the Division of Transportation Planning for Caltrans, will brief the Council on their work related to climate change adaptation planning and highways located in the Delta.

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- Martin Engelmann, Deputy Executive Director of Planning for the Contra Costa Transportation Authority, will talk about transportation issues in Contra Costa County.
- Michael Selling, Deputy Director of Engineering Services for San Joaquin County Public Works, will discuss current and future challenges to operations and maintenance of their roadways.
- Sam Shelton, Associate Planner for SACOG, will brief the Council on the status of the RUCS program.

During the presentation or in follow up discussion, the Council may wish to consider these questions:

- What are other transportation agencies doing and what should the Council be doing to anticipate sea level rise impacts on the Delta's transportation system?
- How would a Delta Flood Risk Management Assessment District raise funds to account for the benefits of levee maintenance and improvements to transportation agencies and users?
- How could mitigation measures for BDCP impacts to transportation be better coordinated with local, regional, and state transportation plans?
- Should regional transportation investment plans place more emphasis on Delta bridges? Are they important links in evacuation routes in case of catastrophic flooding?

**List of Attachments**

Attachment 1: DWR's Map of Roadways Protected by Levees in the Delta

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